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SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE • AUGUST 14, 1943

TECHNOLOGY DEPT:



Active Earth

See Page 101

A SCIENCE SERVICE PUBLICATION

Do You Know?

An all-metal, self-bailing *life-raft* has been adopted by the Maritime Commission.

Muelheim, situated on both banks of the Ruhr, represents a concentration of anthracite mining, steel manufacturing and shipping interests.

For maximum efficiency of feed utilization, about one-third of the total *proteins* in the diet of hogs, chickens, and turkeys should come from animal sources, nutritionists report.

The army "duck" is partner of the "jeep"; it is an *amphibian truck* that can operate on land or water, some 30 feet in length and 8 in width with a capacity of approximately 35 men.

Extensive *magnesium* rock deposits, discovered recently north of Lima, Peru, may be mined and processed with electricity from the new hydroelectric plant under construction by Peru in the Canyon del Pato.

Two new *sandless glasses* for optical purposes have been developed: one is made from boric acid, zinc oxide, and aluminum hydroxide or beryllium oxide; the other uses cadmium oxide instead of zinc oxide.

Eight important *medicinal* and *insecticidal plants* are being introduced into Mexico to replace Far-East products; they will produce red squill for rats; rotenone and pyrethrum for insects; and belladonna, senna, peppermint (for menthol), henbane and stramonium.

Question Box

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SEISMOLOGY

How have earth shocks been associated with the eruption of Mexico's new volcano? p. 101.

Carbon disulfide, kerosene or cheap gasoline will kill *ants* in nests on lawns and in gardens.

Dogs resist cold weather because they do not sweat, but cool off by panting; horses in their thick winter coats may sweat and catch pneumonia.

Tomatoes on vines lying on the ground may be protected from rotting by a light hay mulch.

More than 300,000,000 pounds of *fish* and shellfish are landed annually at East Coast ports from Rhode Island to Virginia.

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AERONAUTICS

Anti-Icer Perfected

Consolidated Catalina is first airplane equipped with device which shoots hot air through ducts on wing and tail surfaces to prevent ice formation.

➤ **ANTI-ICERS** for warplanes, which shoot hot air through ducts under wing and tail surfaces to prevent dangerous ice formations, have been perfected and are now being installed to make combat flying safer. In post-war flying the equipment promises to banish at last the air disasters due to icing which have occurred since the beginning of aviation.

Announcing that the Consolidated Catalina, a long range patrol bomber, is the first airplane off the production line equipped with the new device, Consolidated Vultee Aircraft Corporation revealed that plans are under way for installation of the thermo anti-icing systems in the Liberator and Coronado bombers and the new Navy flying patrol boat, P4Y-1.

Other sources indicate that several additional aircraft manufacturers are discussing adoption of this equipment and are working on the necessary design changes.

Ice elimination by means of heated air was conceived and developed over a period of years by the National Advisory Committee for Aeronautics, government research agency. Consolidated Vultee engineers have been active in perfecting the equipment, cooperating with the NACA technical staff.

In this anti-icing method, hot exhaust gases are used to heat air which is then circulated beneath wing and tail surfaces. Controlled initial temperatures range as high as 350 degrees Fahrenheit. This heated air keeps the aluminum alloy leading edges at a temperature of about 60 degrees Fahrenheit and warms the entire wing surface to a lesser degree.

Early research encountered problems of overheating and thermal expansion of the metal surfaces, which have now been overcome. Test flights in the far North have shown that the device functions perfectly.

Air ducts can be installed to supply heated air to the leading edges of the wing panels, from which the air sweeps back through the interior of the wing and over the aileron, preventing the icing of aileron controls. Tail surfaces are likewise kept free of ice. In an in-

stallation, such as has been made on the Liberator, hot air is also conducted forward to the cabin and flight deck, where it defrosts pilots' windshields, bombardier's window and heats the cabin.

Several advantages are claimed for thermo anti-icing systems:

1. There is no danger of ice caking on the wing surfaces to destroy lifting power. The pneumatically operated rubber de-icers now commonly used are intermittently inflated with air to crack the ice off leading edges, but rough ice formations are often left on top of the wing which make the plane hard to control. The new thermo anti-icing system prevents ice from forming anywhere on the surface.

2. The device can be operated during combat, at slow flying speeds and during take-offs and landings, as there is no loss of aerodynamic efficiency in either wing or tail surfaces. As better planes required smoother wing surfaces, the lowered efficiency produced by rubber pneumatic de-icers became increasingly objectionable.

3. Destruction of accumulated ice and frost by the anti-icer begins as soon as the engines of the aircraft are started during sub-freezing weather and continues as long as the motors run.

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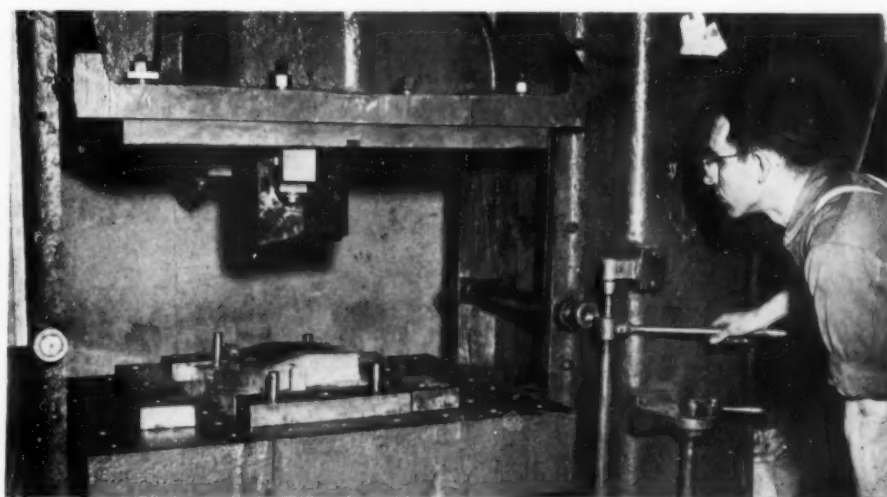
ANATOMY

Two Brains Discovered In Head of One Dog

➤ **DISCOVERY**, apparently for the first time on record, of a dog with two brains jolted scientists in the laboratories of the District of Columbia Health Department. Dr. John E. Noble, director, thought someone was playing a joke on him when first told of the discovery.

The two brains in one head were discovered in a collie of mixed type but no unusual appearance, by J. B. Holland. Mr. Holland was examining the dog's brain for rabies when he found the second, smaller brain behind the first but also attached to the dog's spinal cord. Evidence of rabies was found in both brains.

Authorities at the Bureau of Animal Industry, U. S. Department of Agriculture, declared they had never heard of such an anomaly before. Two-headed calves, five-legged animals and humans with an extra thumb or finger, yes; but a two-brained dog is apparently something new in the records. (Turn page)



PLASTIC PUNCH—To conserve critical metal in the manufacture of warplanes, the Curtiss-Wright Corporation at Buffalo has developed this plastic punch and die made of non-critical metal. Intended to save materials, the punch also saves valuable time for it can be shaped into a perfect fit with the die in a single operation; the die is heated and then the roughly shaped punch pressed to it. Pressure forces the plastic to flow and produces an exact match.

Dr. Noble suggests that there may be more which never are discovered because, luckily, they fail to get rabies and have their brains examined after death. By the time the discovery of the second

brain was made and verified, both had been handled too much to make it possible to preserve them as museum specimens.

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BIOLOGY

Tumors Causes Traced

Tumor-causing bacteria, rendered harmless, are nevertheless able to produce harmful growths when hormones are added. Have cancerous effects.

► **TUMORS ON PLANTS**, that are very much like animal tumors, even to the formation of cancerous dead areas within themselves and eventually killing the plants, are being studied by Dr. Philip R. White at the laboratories of the Rockefeller Institute for Medical Research. They are unlike animal tumors in that they are started by easily detected bacteria, but they are like animal tumors in that they can be transplanted into previously healthy tissue — and these transplants do not need to have the originally causative bacteria in them to continue their malignant growth.

Dr. White's latest efforts have been in the direction of finding how these bacteria operate to start the tumorous growth. He has not got the whole answer yet, but he is able to report one or two interesting leads.

One thing he has discovered is that the bacteria can be robbed of their tumor-causing power by growing them on nutrient media containing the protein fraction known as glycine. Bacteria thus treated can live in the tissues of the host plant, but tumors do not develop at the point of inoculation.

However, if the top of the plant is cut off, and the tissues around the infected spot are treated with a solution of one of the growth-promoting substances or hormones, tumors again develop, although bacteria taken from these new tumors are still unable to produce new tumors elsewhere unless they are again aided by growth-promoting hormones. But if bits of the germ-free tumors are transplanted into healthy plants, they will develop into big and harmful growths.

That is, even though the bacteria have been rendered harmless by themselves, they are still capable of being links in a chain of harmful development, that can go on afterwards by itself without them. As Dr. White phrases it, the

plant's cells have undergone a "permanent and irreversible cancerization."

Another lead followed by Dr. White has been the suggestion that the bacteria themselves are not the cause of the mischief, but that they act as carriers of a virus, much as mosquitoes serve as carriers of the yellow fever virus. The hypothetical tumor virus, it was suggested, might then carry on in the plant tissues without further help from the bacteria.

To test this, Dr. White sought a plant species that could survive a degree of heat that is sufficient to kill known plant viruses. Such a species was not easy to find, but he located one finally, a garden flower known as the Madagascar periwinkle. This delicate-looking but really

tough little plant can survive prolonged exposure to a temperature of 115 degrees Fahrenheit.

Inoculated with the tumor bacteria and held at this temperature for ten days, nothing happened; but when the temperature was lowered to an ordinary greenhouse level the tumors developed normally. In the meantime the bacteria themselves had disappeared—but before they died they managed somehow to bequeath to the plant tissues a heritage of abnormal growth.

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INVENTION

Portable Electric Fan Used in Any Position

► **TIMELY** in these dog-days is the invention of Edward A. Ebert of Buffalo, on which he received patent 2,325,754. It is a compact, easily portable electric fan, about the size of an ordinary baking tin and entirely enclosed. It can be set on a desk or table or hung on the wall, to blow a steady breeze in one direction. It can be laid flat on its face, in which case it sets up a milder general circulation that will not ruffle hair or disturb loose papers. Or it can be laid on its back, again to produce general air circulation.

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DESTRUCTION—This picture shows how the flow of lava uproots trees and burns them in its path.

SEISMOLOGY

Volcano Unpredictable

Scientists studying action of Mexico's new volcano are not able to tell evacuating people when it may stop spouting lava and dust.

See Front Cover

► SCIENTISTS are not able to predict as yet when the new Mexican volcano, Paricutin, will stop erupting, Ralph R. Bodle, U. S. Coast and Geodetic Survey seismologist who has made an inspection of the volcano, declared on his return to the United States. (See *SNL*, May 22).

Mr. Bodle met a native who was helping to evacuate the people of the little town of Paricutin partially covered by lava from the volcano.

"Many learned people come here to study the volcano," said the native. "They write articles but with all their knowledge not one can tell you when the volcano is going to stop."



STUDYING ACTION—Ralph R. Bodle, of the U. S. Coast and Geodetic Survey, who took the photographs on the facing page and on the cover, is shown here with his instruments for studying the volcano.

The government seismologist was on the spot to watch the antics of volcano when it let loose a new flood of lava in mid-June. The new phase of activity was ushered in by a strong earthquake motion that shook the whole countryside. The cone itself was obscured by a great cloud of dust. Then a third to a quarter of the cone collapsed due to lava forcing its way out under one side of the base. The lava flow continued for about 10 days until it reached the village.

Mr. Bodle's studies show that earth shocks at the city of Uruapan about 15 miles distant from the volcano were almost continuous for some 20 days before the volcano began to form in a corn field on Feb. 20. Some strong shocks that were felt on Feb. 22, he believes, were due not to the volcano but to a large earthquake centering off the west coast of Mexico. Shocks were felt throughout the immediate region of the volcano for some days after the lava appeared.

Strangely enough, the shocks continued in one locality about five miles southwest of the volcano long after they had died out elsewhere. At this place, known as Pechu, in the foothills of Tancitaro mountain, the shocks continued until about May 7, when they nearly ceased. A field party surveying the earth's magnetism near the volcano under the direction of Nelson C. Steenland of the U. S. Coast and Geodetic Survey camped there May 21 and felt three shocks which appeared to be related to explosions in the crater of the volcano.

In his exploration of the volcano Mr. Bodle noticed that the sand was hot at one place. Three or four days later a lava field had covered the site of his observations.

This caused him to credit the story heard in Mexico that before the volcano appeared, an Indian in whose field it started found that the ground was warm and went out there to sleep to ward off the chill of night air.

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OLD CONE—This is how Mexico's new volcano looked before the later eruptions tore into its side and broke the cone at the top. To see how the appearance was changed, look at the illustration on the front cover of this week's *SCIENCE NEWS LETTER*.

CHEMISTRY

Home Dehydrated Foods Must Be Kept Dry

► WARNING against packaging home dehydrated foods in paper containers that are not moisture-proof, A. F. Wendler, technical section manager of Du Pont's Cellophane Division, pointed out that a poor container will result in waste of needed dehydrated food just as surely as a leaky seal will ruin a jar of canned tomatoes or string beans.

Although moisture-proof papers, such as cellophane, are satisfactory, they are not always easy to obtain because of the demand for war packaging. Supplies of the grease-proof cellophane known as "plain transparent" are sometimes available, but Mr. Wendler explained that this variety will not protect foods adequately.

Only moisture-proof cellophane should be used. This type seals to itself upon application of a hot iron, thus giving a simple test for identity.

No matter what packaging material is used, the food must be thoroughly dried. Careless dehydration permits moisture to remain on the inside of the larger pieces of food. After packaging, this moisture may be given off and cause the whole package of food to become moldy.

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PUBLIC HEALTH

Pollen Attacks

War and weather have combined this year to step up the crop of ragweed and other hay fever weeds and also to prevent victims from taking refuge.

By GLENN SONNEDECKER

► WAR AND WEATHER have doubled up to produce a bumper crop of sneeze-provoking weeds this year. August brings the peak of aerial invasion by ragweed pollen, the hay fever victim's chief enemy.

Nearly 4,000,000 people in the nation will fall victim to bombardment by microscopic pollen grains dropping from the skies, it has been estimated. Fatalities will be few but physicians are sounding an alert so that prospective sneezers can take all possible precautions to avoid suffering and lost time in the war effort.

This year started out as a bad corn year, which usually portends a poor crop of ragweeds and other provokers of late hay fever, for they both thrive on much the same kinds of soil and weather. But the rain that kept farmers from getting seed in the ground and set back the corn crop failed to stymie the hardy ragweed. Its seed had already been self-sown, away back last fall. So although the cool spring weeks slowed down its growth somewhat, it was right there on the job, and when the hot summer days came it fairly humped itself along.

The many small floods of the spring were also favorable for ragweed growth. Giant ragweed is especially fond of recently flooded bottom lands where a thin layer of rich mud is left behind by the retreating waters.

Labor Shortage Contributed

Even after the crops were in, unseasonable rains in many sections gave the weeds a head start over the farmers by preventing early and clean cultivation of fields. War itself worked hand in hand with the sneeze weeds, for the shortage of farm help and farm machinery kept them from overtaking the myriad of fast-growing weeds.

Of perhaps greater importance to city dwellers is the disappearance of the scythe crews from the CCC, WPA and other relief agencies, who are now helping to cut down more formidable ene-

mies by service in the armed forces or war industry. In less bustling times these workers made considerable headway against the thick jungles of giant ragweed and wild hemp now seen more frequently along the highways and on vacant lots and other city wastelands.

Hemp Is Feared

Reports that hemp growing is being pushed by the government in several midwestern states to meet Navy needs for rope may have caused some consternation among allergy victims, for this tall, tough-fibered member of the mulberry family is also a tough member of the rogues' gallery of allergy-producers.

Hemp is supposed to be harvested before it begins to shed pollen, however, so it should not cause much trouble. Farmers whose hemp crops do not

pan out well should cut them whether they harvest them or not, simply to prevent the plants from flowering.

Hazard of wartime production is that the unruly plants will escape cultivation and become a first-rate troublesome weed. Before the war, hemp cultivation in this country was strictly regulated because it is the source of a narcotic drug; our commercial supplies of the fiber had been imported from the Philippines and elsewhere in the East. But today there are probably thousands of acres of wild hemp growing as a vestige of former days of hemp cultivation in the United States.

Another enemy alien, a rough member of the goosefoot family that immigrated more than a half-century ago, is Russian thistle. Hotfooting it across the prairies, this prickly tumbleweed has left a trail of hay fever casualties clear across the western half of the country.

Worse Than Ragweed

Even a larger proportion of the population in this area is reported to be sensitive to Russian thistle pollen than is



HAY FEVER WEAPON—An Army nurse prepares the first of a course of desensitizing injections, selected on the basis of the tests, from a rack of solutions containing the various sneeze-producing pollens.



DESENSITIZING—Although the Army has rejected thousands of men because of hay fever, a brawny soldier is sometimes reduced to an ineffective state of sniffles and sneezes by the massive doses of pollen encountered in field operations. Lt. Col. L. E. Leider, M. C., of Walter Reed General Hospital, is shown giving a treatment of desensitizing pollen solution to one of the men.

the proportion of ragweed sufferers in the ragweed belt. The season of pollination is now on and will continue well into September.

Many Americans are up against sneeze trouble and all the other uncomfortable symptoms for the first time because of a visit from the migrant Mexican fireweed or burning bush, alias summer cypress. This plant has spread through sections of the Midwest, is now rampant in Iowa, Nebraska and Colorado, and is moving into adjacent states.

Spearhead of the pollen attack will be the ragweeds, of course, chiefly the tall and short varieties. The main assault will be launched in northern states early in August, with the pollen clouds spreading over the whole Mississippi valley a few days later. If operations proceed according to schedule, the Gulf coast will be reached by September.

1,000,000 Tons

There will be no shortage of powder for the pollen barrage. Botanists have estimated that a quota of around a million tons of yellow stuff is on order. Even though there are no hay fever

weeds in your neighborhood, few will escape for the light pollen can drift 15 miles or more, often soaring five or ten thousand feet into the air.

Most busy Americans will be unable to take the time this year to flee to the North Woods or to the mountain areas where the attack will be slight. In fact, many patriotic workers who join the land army will be exposed to more massive doses of nature's sneeze powder than ever before.

Attacks in Field

America's fighting men face the same situation in field operations. Although the Army has rejected thousands because of hay fever, some brawny soldiers have been reduced to an ineffective state of sneezes and sniffles by allergy-producing pollens and sent to Army hospitals for treatment.

On the home front, defense measures will include improvised gas masks and more effective commercial respirators. Some sufferers will take to air-conditioned pollen-proof shelters. As hay fever victims know, this does not include air-cooling, for chilling usually

brings on a paroxysm of sneezing. Loss of body heat causes an abnormal swelling of tissues in the nose, with resultant sniffing and sneezing.

Since alcoholic drinks cause heat loss through dilation of the blood vessels, tipping is likewise taboo.

Most successful treatment is the desensitizing injection of pollen solutions, which build up an immunity. It is most efficient if started at least a couple of months before pollen arrives, but is often effective when taken during the hay fever season.

Nine out of ten treated get relief, and one authority estimates that careful specific treatment for one to four years will give permanent tolerance or cure to one-third to one-half of the patients.

Tracking down the offenders is the physician's first job. Small amounts of the suspected pollens are injected beneath the skin. Those to which the hay fever victim is abnormally sensitive raise small white or pinkish places on the skin, called wheals.

When the pollens are thus identified, the physician proceeds with a course of injections of pollen solutions. Starting with small amounts, he increases the quantity until the patient has been desensitized.

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TEST—First step in effective treatment of hay fever is the test injection of small amounts of solution made from various kinds of pollen. Wheals are raised at the site of injection by the offending pollen or pollens.

MILITARY SCIENCE

Simple Invention Tests Trigger-Squeeze Progress

► OF PRESENT practical importance is a simple invention on which patent 2,325,599 was issued to Paul Fidelman of New York. It is a small attachment for the trigger of a rifle with which the raw recruit is learning the difficult art of squeezing the trigger slowly and smoothly, instead of nervously jerking it.

A small metal slide behind the trigger is part of an electric circuit that keeps a buzzer sounding. In the middle of the slide is a piece of nonconducting material that interrupts the circuit briefly during the critical moment when the hammer falls. If the trigger is jerked there is virtually no break in the buzz, but if it is given the proper slow squeeze there is an appreciable pause. The instructor can thus tell how his pupil is getting along.

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PUBLIC HEALTH

Health of U. S. at War Continues to Be Good

► "AMERICA at war continues in good health," statisticians of the Metropolitan Life Insurance Company report in a summary of mortality experience of its millions of industrial policy holders in the 19 months since Pearl Harbor. (*Statistical Bulletin*, July).

In 1942 the mortality was the lowest ever recorded for any year. Although the monthly death rates have been higher each month this year than for the preceding year, the rate for the first six months of 1943 is only 7% higher than for the same period in 1942 and appreciably lower than in any year before 1938. Aside from the mounting toll of war deaths the only other unfavorable features are the higher-than-ever-before death rates from cancer, cerebral hemorrhage and diseases of the heart and arteries.

Gasoline rationing has rolled back the auto accident death rate to 11.6 per 100,000 population which is about what it was for the first half of 1922, and 37% below the first half of 1942.

American women, now playing an important role in war production, are healthier than ever. In the two years before our entry into the first World War the death rate among the company's women industrial policy holders was 13 in every 1,000 of ages 15 to 74

years, while in the 1940-1941 period it was less than half that, seven per 1,000.

Married people, the statisticians find, live longer, this being especially true for married men. At ages 30 to 44 years the death rates among married men are just about half those among the bachelors. Between 1929-1931 and 1939-1941 the death rates declined somewhat more rapidly among the married than among the single at ages under 40 years.

Those whose marriage is broken by death, however, experience a mortality even higher than those who remain single. Here again the men are slightly worse off than the women.

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AERONAUTICS

Navigators Should Be Required to Hold License

► ALL AIR navigators should be required to pass a uniform examination and hold a Federal license, believes Kerry Coughlin, Chief Navigator for Consairways, San Diego, Calif. He realizes that the navigator's responsibility today is multiplied every time the range of our airplanes is increased.

Pilots, co-pilots, and flight engineers are licensed by the Civil Aeronautics Authority; radio operators must receive their license from the Federal Communications Commission; but the navigator—often called "Charts" by the crew—is still an unlicensed specialist. Yet it is he who must answer the all-important question, "Here is our objective, how do we get there?"

The navigator is a relative newcomer to air flight. Before the war, pilots going overseas usually had to do their own navigating. Ships flying cross-country normally did not bother with intricate celestial computations, thanks to radio beams and beacons.

The number of aircraft flown overseas by the Air Transport Command has jumped 1200% in the past year, recently pointed out General H. L. George of the ATC, under which Consolidated Vultee is operating its Consairway Division.

Navigators chosen for training at Consolidated Vultee are required to pass a strenuous test in dead reckoning and celestial navigation (a test equal to a second-class navigator's examination), and show unusual ability to learn. The airplane navigator must master not only marine navigation, but learn to deal with a third dimension—depth.

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IN SCIENCE

PUBLIC HEALTH

Public Health Service Announces 16 Fellowships

► THE U. S. Public Health Service has just received funds from the W. K. Kellogg Foundation for 16 additional fellowships in health education. Each fellowship carries a monthly stipend of \$100 for 12 months plus tuition and leads to a Master's Degree in Public Health. Studies may be pursued at Michigan and Yale in addition to the University of North Carolina, where 20 fellows are already training.

The object of these fellowships is to train health educators to meet the present shortage of such personnel and an anticipated demand in the future in both this country and abroad. Placement after training is anticipated. The new fellows will start their training with the fall term at the respective universities. Applications and other pertinent material must be in the office of the Surgeon General, U. S. Public Health Service, Washington, D. C., on or before Sept. 4.

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INVENTION

Fruit Jars Easily Sealed By Side Seal Closure

► FRUIT JARS for home and factory canning may be covered and sealed by what seemingly is a device never before used. It is called a "side seal glass closure" and was developed by the Hartford-Empire Company, a manufacturer of glass machinery. The company is offering the design of this new glass closure freely to the industry as a contribution to the war effort.

A pliable plastic material is used as a gasket to fit around and slightly above the top of the jar. When rubber becomes plentiful again, either natural or synthetic rubber gaskets may be used instead of the plastic. The rim of the glass cover is slightly bevelled on the inside. When the cover is placed over the jar and gasket and firmly pressed, it compresses the gasket and causes the projecting upper edge of it to mold itself over the top edges of the jar. Glass does not touch glass at any spot. The seal is perfect. The top is easily pried off when the jar is to be opened.

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NE FIELDS

MEDICINE

What It Costs to Be Born In a Hospital Figured

► BRINGING advance financial warning the stork usually fails to give, statisticians of the Metropolitan Life Insurance Company offer the \$2500-a-year-man the following facts on what it will cost to have his offspring born in a hospital: (*Statistical Bulletin*, July).

If the mother goes into a ward, the total cost will be \$185, of which \$75 is the hospital bill, \$75 goes to the housekeeper or maid (if she can get one) when she gets home, \$25 is for the minimum layette and \$10 for incidentals.

For semi-private room service the total cost will be \$325, the extra being an additional \$25 on the hospital bill, \$100 for the physician's fee, and an increase of \$10 for the incidentals.

If Grandpa elects to help defray the costs for having his grandchild born in private room status, the total will be \$450, made up of \$150 hospital bill, \$150 physician's fee, \$75 for housekeeper, \$25 for layette, and \$50 for incidentals.

Science News Letter, August 14, 1943

AGRICULTURE

Maple Syrup Yield Doubled When Grazing Was Stopped

► MAPLE SYRUP yield from a large grove in Ohio was doubled last spring, after the former practice of letting livestock graze under the trees had been discontinued for three years, Prof. Paul B. Sears, head of the botany department at Oberlin College, reports (*Science*, July 23).

Three years ago, Miss Elaine Hoff, a graduate botany student at Oberlin, began her study on about 225 acres of maple "bush," containing a total of 1,425 trees. During two years a general improvement of the "woodsiness" of the area was noted—more wildlife, and an increase in seedlings. There were some indications of increased sugar yield, but it was difficult to obtain precise data.

"During the season just ended, however," states Prof. Sears, "the 1,425 trees which were protected from grazing produced an average of nearly one quart of syrup per tree against approximately one

pint per tree from other groves in the neighborhood which have remained pastured. Furthermore, the unpastured area produced a yield of 40 barrels of sap after flow had ceased in the pastured woodlands. Previous to protection, the sap flow was no better than that of other pastured groves in the area. The 1943 yield represents an increase in gross income of \$570 for the unpastured area. The area, rented for pasture, would have brought in less than half this amount. While this test may not be conclusive, it is certainly significant, particularly in view of the fact that one of the most serious sources of economic waste in the North Central States is the grazing of woodlands and consequent destruction of undergrowth, including seedlings."

Science News Letter, August 14, 1943

MEDICINE

Nylon Used to Filter Plasma for Transfusion

► SUCCESSFUL use of nylon to filter blood and plasma for transfusions is announced by Dr. S. Brandt Rose of the Philadelphia General Hospital (*Science*, July 23).

Stored blood and plasma in the banks ordinarily have sodium citrate added to it to keep it fluid. In spite of this, barely detectable clots and clumps of fibrin and gelatinous material may form in the blood or plasma. These are potentially dangerous to the patient getting the transfusion, so surgeons usually filter the stored blood or plasma before transfusing it.

Cotton gauze, fiber glass braid, stainless steel screens, glass beads, and, most recently, a viscose rayon cloth have been used for this purpose.

Nylon filters have the advantage of removing all clots without clogging. This is probably related to the fact that the nylon filaments are very smooth with round cross sections. Watery solutions spread over their surface without much absorption.

The nylon filter does not shed lint as cotton gauze does. It is simple to clean, assemble and sterilize under steam. Ordinarily nylon would be cheap enough so that the filter bag could be thrown away after one use, but since this is now a critical material, Dr. Rose and collaborators wash and re-use the bags repeatedly. Each of their filters has been used at least 25 times.

Science News Letter, August 14, 1943

AERONAUTICS

Reports Jap Pilot Quality Not Rapidly Deteriorating

► REPORTS of a rapid deterioration in the quality of Japanese fliers are hit by Maj. Gen. Claire L. Chennault (who ought to know if anyone does) in *Air Force* (Aug.), official service journal of the U. S. Army Air Forces. There is some shading off, he admits, but not much.

"The Japanese pilots you will face over China," he tells new men reporting to him, "are only slightly less skilled than those we fought two years ago. The Japanese seem to have speeded up their training program to meet the demands of combat. As a result, their newer pilots lack the polish of the older Chinese veterans."

All Japanese pilots are good gunners, he adds, and the 20-millimeter cannon they carry are larger than the machine-guns with which most of our combat planes are armed. But they are shorter-ranged than our .50-caliber weapons.

Japanese planes are still built of good materials, Gen. Chennault continues, but the workmanship is not up to the standard of the materials. Extreme lightness of construction, too, renders maintenance difficult. A few hits wreck a Zero beyond hope of repair, whereas American planes may fly back from missions all shot up but are back in the air again after a few hours in the hands of our expert service crews.

For Chinese fighter pilots Gen. Chennault has only the highest praise. They fought the Japs to a standstill even before the outbreak of war in Europe, as long as their planes held out. One Chinese pilot got three bombers on his first two flights as a night fighter.

"Chinese pilots have plenty of nerve and are superior to the Japanese in individual combat," the general declares. "They have better judgment and headwork in rapidly changing situations. The Japanese are better in formation work."

"Six years of invasion have sowed bitter seeds of hate in China. The Chinese will never stop fighting until the Japanese are driven from Chinese soil."

"One of the reasons for China's resistance to the Japanese lies in the fact that every Chinese has something he considers worth fighting for. Even the poorest coolie with only a mud hut will fight to keep it. You can never conquer a nation like that."

Science News Letter, August 14, 1943

MEDICINE

New Polio Treatment

Recovery was hastened in most of group of 20 patients when they were given prostigmine, drug used in muscle weakness disease.

► RECOVERY from infantile paralysis was hastened in most of a group of 20 patients by prostigmine, given hypodermically and by mouth, Dr. Herman Kabat and Dr. Miland E. Knapp, of the University of Minnesota, report (*Journal, American Medical Association*, Aug. 7).

Prostigmine has been used heretofore in myasthenia gravis, a disease of muscle weakness. In this disease it strikingly relieves the fatigue of the skeletal muscles.

In infantile paralysis this drug relieves the excessive muscle tone or tension and the muscle spasm and also reduces incoordination. The effect may appear as soon as one hour after the drug has been given. One 17-year-old girl, for example, was left six months after the start of infantile paralysis with a flexion deformity of her hand such that the examiner could not straighten the patient's fingers or extend her wrist. One hour after injection of prostigmine, this deformity completely disappeared. Other affected muscles also improved as the

treatment was continued and the doctors believe that recovery was speeded in her case, as in most of the other 19, by the prostigmine.

Atropine is usually given with the prostigmine, to offset certain undesirable effects. In most cases the hot fomentations of the Kenny treatment were given along with the prostigmine treatment, but the doctors believe the improvement was much more rapid than usually follows the hot foment treatment alone.

The prostigmine was started in some cases within three or four weeks after onset of the disease and in other cases several months later. In one case the prostigmine was started 16 months after onset. This patient, one hour after injection of prostigmine with atropine, was able for the first time in 16 months to bend over and touch the floor with the knuckles of her hands while keeping her knees straight.

In two patients with severe involvement, there was little recovery after the prostigmine treatment.

Science News Letter, August 14, 1943

MEDICINE

Appendicitis an Allergy?

Theory advanced that swelling of appendix tissue is similar to swelling of other tissues in hay fever. Surgery required, nevertheless.

► APPENDICITIS may be due to allergic reactions similar to those causing the symptoms of hay fever, asthma, hives and the like, Dr. L. O. Dutton, of El Paso, Texas, declares in a new medical journal, the *Annals of Allergy* (July-August).

This bi-monthly journal, published in St. Paul, Minn., is the official organ of the newly organized American College of Allergists. This new scientific body aims, among other things, to bridge the gap between doctors specializing in treatment of allergy, the many other practicing physicians "who are applying allergy to their practice," and the non-clinical scientists such as biochemists,

pharmacologists, botanists and plant pathologists who contribute to knowledge of allergy and its management.

The theory that appendicitis is due to allergy does not, Dr. Dutton emphatically states, contradict the fact that it must be treated by surgery. Prompt diagnosis and prompt operation to remove the inflamed appendix before it ruptures and causes death-dealing peritonitis is required, regardless of whether or not the appendicitis was caused by allergy.

The allergic theory, however, if proved valid and sound, "offers some hope of prophylaxis," he states.

Scientists have never agreed on one

single cause for appendicitis, he points out. In some cases the cause is mechanical obstruction due to fecaliths, kinks or adhesive bands. Functional obstruction due to swelling is supposed to occur frequently. Such swelling and engorgement of the appendix tissue is similar, Dr. Dutton points out, to the swelling which characterizes allergy in other conditions as, for example, hay fever. Careful study of over 120 cases of appendicitis and the appendices removed at operation strengthened Dr. Dutton in this theory which previous experience had suggested.

In 87 of these patients, moreover, 45, or more than 50%, gave a history of definite hay fever, asthma or hives existing before the appendicitis attack. Although based on too few cases to be statistically reliable, Dr. Dutton says, the figures are nevertheless impressive in contrast with the fact that these three allergic conditions occur in less than 10% of the general population.

Science News Letter, August 14, 1943

PUBLIC HEALTH

Infantile Paralysis Outbreak Keeping Up

► THE infantile paralysis outbreak in the Southwest is keeping up, with enough new cases reported to jump the total figures for the nation from 329 on July 24 to 359 for the week ending July 31, reports to the U. S. Public Health Service show.

Texas with 105 and California with 104 still had the largest number of cases. Oklahoma reported 30, a slight decrease over the previous week's 42. Kansas reported 30 cases the last week in July, contrasted with seven the previous week.

Dysentery cases have been running almost twice as high throughout the nation, so far this year, as during the first seven months of last year. Lack of adequate sanitation in eating establishments and carelessness of food handlers now being employed is thought to be a possible explanation for the increase.

A new record low in typhoid fever cases and deaths will be set this year, figures for the first seven months indicate. Up to July 24 this year there were 2,424 cases reported, while during the same period last year the figure was 3,144.

Science News Letter, August 14, 1943

North Dakota's fur harvest for 1942 totaled nearly \$1,000,000.

Whirlwind's BROTHER

IT'S a 2-to-1 bet that your home electricity is born in a man-made hurricane five times as ferocious as any Nature ever cooked up. Engineers call it a steam turbine-generator.

A steam turbine is a kind of cross between a mammoth windmill and a giant's spinning top. It takes steam hot enough to heat the pipes a dull red, and squeezes the energy out of it until, 1/30 of a second later, all that's left is water too cool to bathe the baby in. The turbine turns a generator which passes this energy on to you as electricity—so you can use it to cook an egg, or freeze ice cubes, or make bombs to blast the Axis.

This machine isn't the sort

of job that a manual training class would turn out! Just one part, small enough to hold in your hand, may handle more power than a dozen trucks. And the steam takes the turbine rotor for such a dizzy ride that if it were turned loose on the Atlantic seaboard, it would roll to San Francisco in four hours!

Today's turbine-generators turn out, from one ton of coal, more electricity than three tons used to give. That saved America millions of tons last year, plus precious man-hours in mining and transportation—all because G-E engineers, along with boiler and power-plant designers and engineers of electric service companies, have been improving turbines

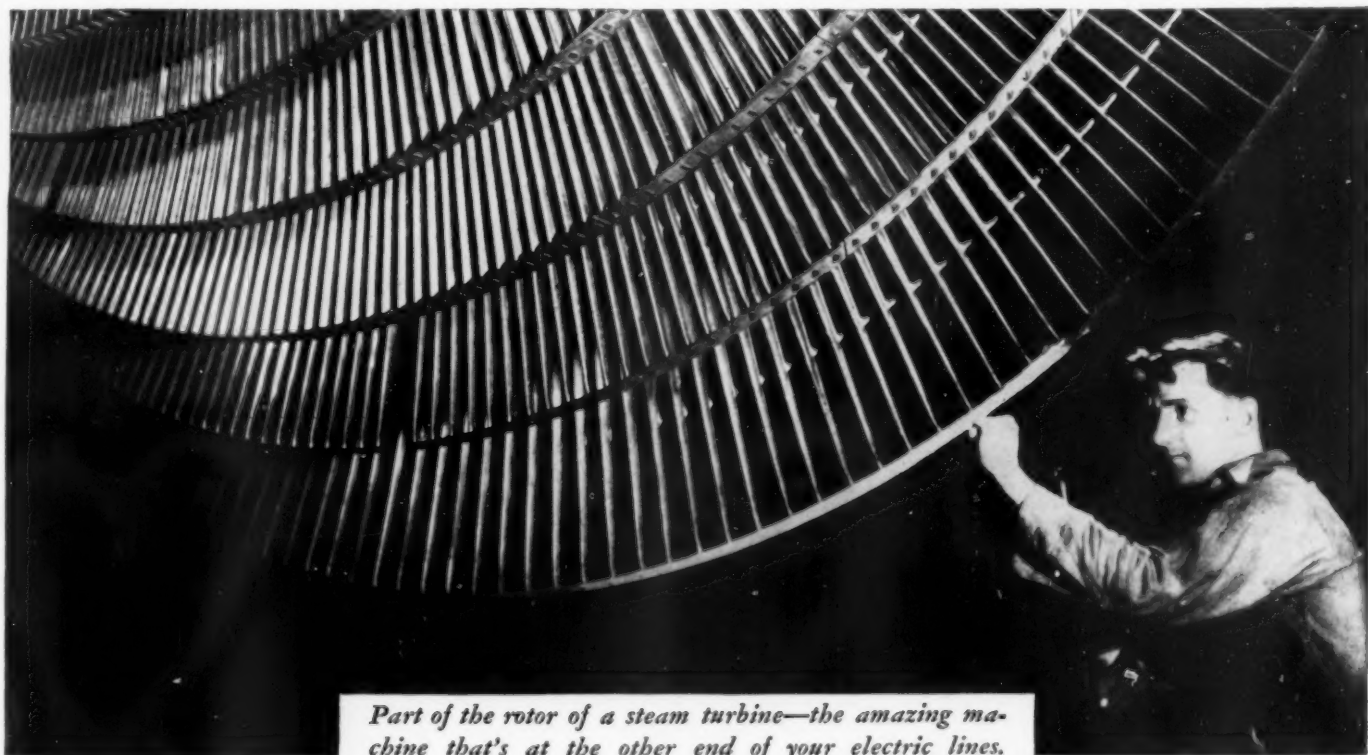
for more than forty years.

More important yet, they have given us a wonderfully efficient machine to drive our ships of war—drive them faster and farther than those of our enemies.

War cannot destroy the ingenuity and experience that created the modern turbine—in fact, it stimulates them. And they will help to create for us better and richer lives in the peaceful years to come. *General Electric Co., Schenectady, N. Y.*

★ ★ ★

You are invited to listen to the "Hour of Charm" 10 p.m. EWT, Sundays, on NBC, and to "The World Today" at 6:45 p.m., EWT, Monday through Saturday, on CBS.



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NUTRITION

Sweets From Sweets

Sweeter breakfast food, five kinds of candy, and an ice-cream powder can now be made from sweet potatoes by new process.

► **BREAKFAST FOOD** that Junior will eat without having to be coaxed with sugar, candy and cookies that you can let him have all he wants of because they are actually good for him, a dozen other things to eat, both tasty and wholesome—all from the South's old familiar standby, the sweet potato, through a new process developed at the Alabama Polytechnic Institute by Prof. L. M. Ware. The new products were demonstrated before a visiting group of food processors and distributors, together with a gallery of newspapermen. After sampling, a unanimous vote in favor was recorded.

The new products, which include three forms of breakfast food, five kinds of candy, and a sweet powder that can be used in ice cream, pies and as part of the mix in "malts," all bear the enticing trade-name of "Alayam." They are sweet with the natural sugar of the sweet potato; none has been added from any outside source. And they have a distinctive flavor of their own, that can be achieved only through Prof. Ware's process.

Businessmen in the group predict a large post-war market for "Alayam" products; their one question is, "When can we get some to sell?" Several who

have never liked sweet potatoes in any form (there are such benighted souls even in the South) have declared themselves converts after trying the new foods.

"Alayam" products resemble dehydrated foods in that most of the water has been taken out of them, but the process is not the same as orthodox dehydration. In that, shredded or diced vegetables are first blanched in hot water or steam, then have almost their entire water content removed by moderate dry heat. In Prof. Ware's process no water or steam touches the sweet potatoes, and their watery content is removed at an appreciably higher temperature and at relatively high humidity.

In dehydration, sweet potatoes lose a large part of their sugar—often as much as 40% to 50%. A cured sweet potato prepared and processed by the new method may run as high as 48% sugars in the final product.

Most of the food value of "Alayam" products is in their carbohydrates, notably sugars. To develop more balanced foods, other things can be blended. For example, if peanuts are added, the finished product will contain carbohydrates, fats, protein, minerals, vitamins A, B and C, and some riboflavin. Prof. Ware suggests that this rather complete food be given serious consideration as something worth using in Army field rations.

Science News Letter, August 14, 1943

HISTOLOGY

Muscle Tissue Studied Under Electron Microscope

► **MUSCLE** tissue of a warm-blooded animal has been studied and photographed under the electron microscope, to disclose details of structure hitherto unknown, or at best inferred from indirect studies with X-rays and other means. This work, done at the Swedish Royal Academy of Sciences in Stockholm, is reported in *Nature* (June 26) by Prof. Fritiof Sjöstrand.

Late in 1942, a group of American scientists in Philadelphia reported electron microscopic studies on muscle fiber,

● RADIO

Saturday, Aug. 21, 1:30 p.m., EWT

"Adventures in Science" with Watson Davis, director of Science Service, over Columbia Broadcasting System.

Dr. Martin G. Larrabee, of the Johnson Foundation, University of Pennsylvania and John G. Bergdoll, Jr., chief engineer of the York Corporation, will tell about medical research in stratosphere flying.

but this was the muscle of a cockroach. It is believed that the present Swedish research is the first carried out on a warm-blooded vertebrate. A guinea-pig supplied the muscle sample.

Since the streams of electrons that are used instead of light rays in the electron microscope must pass right through the specimen, the muscle had to be sliced exceedingly thin. By a technique combining freezing and drying, Prof. Sjöstrand was able to prepare sections that in places were only 20 millimicrons thick. A millimicron is a millionth of a millimeter or a twenty-five-millionth of an inch, so the areas shown in the photographs were slightly less than a millionth of an inch in thickness.

Science News Letter, August 14, 1943

METALLURGY

Blast Furnace in Mexico Will Increase Iron Supply

► A **NEW** blast furnace of 500 tons capacity just put into operation in Monterey, Mexico, by the National Iron Works was hailed by city officials, diplomatic representatives, scientists and others as an important advance in Mexican industry.

Science News Letter, August 14, 1943



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Wildlife Refuges

► RESTORING America's wild birds and beasts to at least some part of their ancient heritage is a great deal more of a job than it might seem in the first flush of enthusiastic approach. It means a lot more than just turning loose a few coveys of pen-raised grouse, or a pair of trapped beaver, and letting them shift for themselves; or damming up a stream to make a pond and waiting for the ducks to come.

How complex the problems attending the establishment of homes for wildlife may be is well set forth in Dr. Ira N. Gabrielson's recent book, *Wildlife Refuges* (Macmillan, \$4). Dr. Gabrielson is in a position to speak from experience, for he has presided over the fortunes of the U. S. Fish and Wildlife Service through most of the decade immediately preceding the war, which was the time of the great expansion of the refuge system in this country.

In attempting to reestablish a wildlife population in an area from which the rush of our earlier civilization has swept it, we must do more than just bring in a breeding stock, or protect a still-remaining population, he points out. The chances are that when we wiped out or reduced the original stock we also changed the environment, making it less able to support wildlife. We must therefore study the situation very carefully, and try to make our woods or pond as hospitable to the birds or animals we want to inhabit it as the primal wilderness was—or at any rate, approximate that as nearly as we can.

This may involve some radical interferences with what may appear to be the ways of nature in a given spot. We may find it necessary, for example, to

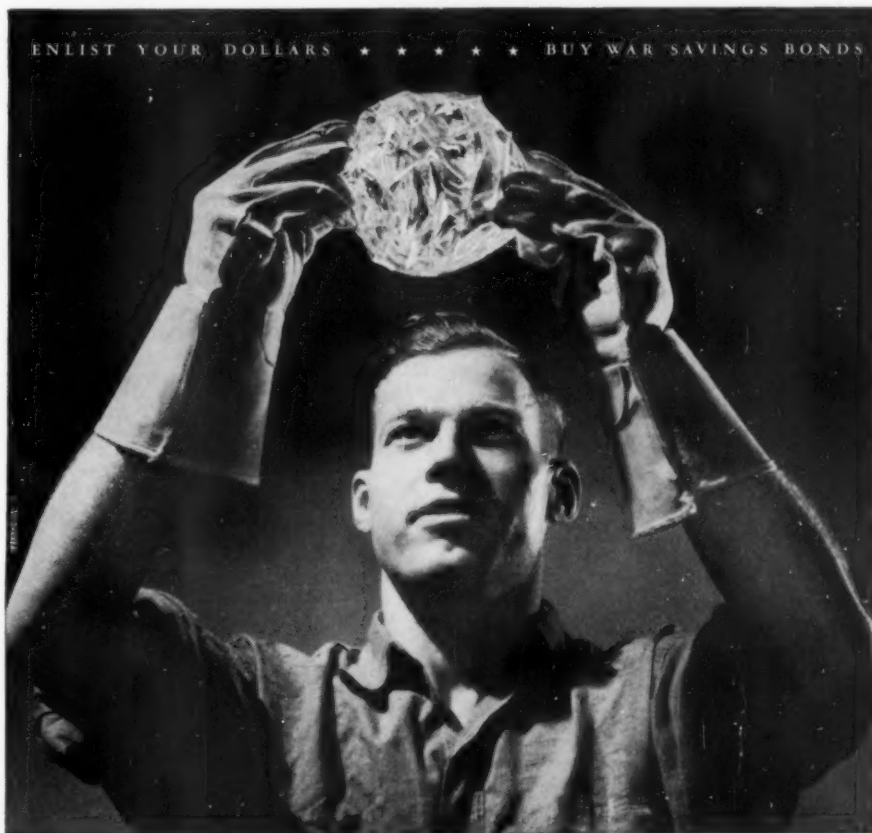
go out and deliberately plant berry bushes or sumac to provide cover and food for game birds, or to encourage mixed hardwood scrub to give the deer something to browse on. To the old-time, orthodox, timber-growing forester all this must seem like simply promoting weeds, but that kind of thing is what wildlife wants for a home, and if you want wildlife it's the tastes of deer and grouse and ducks you have to consult.

You inevitably run into conflicts of interest among the wild creatures, too. For example, it's a good thing to have

muskrats on a duck refuge, for they make inroads on the dense growths of cattails, which are not good duck food, and give the more desirable bulrushes a chance to develop. On the other hand, however, muskrats are bank-burrowers, and that is apt to be hard on laboriously built earth dams and dikes.

Obviously, the job of the modern wildlife manager, who must undertake the part of a deputy Providence, is no sinecure. But perhaps these very perplexities are what make it attractive.

Science News Letter, August 14, 1943



This is an "Optical" War



Pete Miller, glass inspector, is pleased with that chunk of precious optical glass. He knows this is an optical war. He knows that accurate gunfire depends upon optical glass . . . flawless and crystal-clear.

But Pete Miller is not thinking of his skill as a glassmaker at Bausch & Lomb. In that glass he sees his friends at gunfire-control stations on battle cruisers, in the turrets of tanks roaring down on an enemy position, or making aerial photographs behind enemy lines. And always he sees them peering into the sights of a

Bausch & Lomb optical instrument.

This glass is but one of dozens of types of Bausch & Lomb glass, made to meet exacting specifications for the optical systems of binoculars, range finders, microscopes, refractometers, metallographic and spectrographic equipment and scores of other products.

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PHYSIOLOGY

Fish Juice Safe Drink

Human guinea pigs live for ten-day period on daily ration of from 10 to 14 ounces of fish juice as the only liquid in their diet.

► BLOOD and other physiological analyses, as well as clinical observations, all indicate that fish juice, taken as a substitute for water or other liquids, will maintain human life for protracted periods. In a clinical test, two volunteers from the Navy remained in excellent condition for ten days on a diet of solids with no free liquids except the juices of saltwater fish.

The purpose of the test was to determine if shipwrecked men in lifeboats whose supply of water was exhausted, could maintain life on fish juices. It now seems evident that they can. At the end of the period these men were in as good condition as at the beginning as far as could be determined. The indications are they could have lived indefinitely.

The tests were made under the supervision of Dr. Homer W. Smith, of the New York University College of Medicine, at the request of the U. S. Navy Bureau of Medicine and Surgery.

Both men, during the ten-day period, ate freely the solid food given them, but were given nothing to drink except approximately 10 to 14 ounces of fish juice daily. After the first four days their solid diet was restricted to high-fat, low-protein foods.

Analyses of blood and excreted body fluids showed somewhat abnormal physiological conditions, but nothing which Dr. Smith considered dangerous to health. There was evidence that the salt content of the body decreased, reflecting the relatively small amount of salt taken in with the fish juice.

"Since the fish juice contains little chloride and few non-metabolizable osmotic ingredients," the doctor states, "and since under duress, it is sufficiently palatable to be ingested for a protracted period, and induces no nausea or vomiting. . . I am inclined to believe that, under conditions of starvation or on a restricted diet, it would greatly aid in the maintenance of water equilibrium."

Lifeboats and life rafts are already being equipped with fishing tackle to enable their occupants to secure fishfood. Now it is proven they can secure both food and drink if they can get enough fish. To get the juice out of the fish all

that is necessary is for them to chew the raw flesh, swallowing the liquid and spitting out the solid matter. It is a slow process but it can be a life-saver.

Credit for the idea of saving lives by fish juices is due to Gifford Pinchot, for twelve years head of the U. S. Forest Service and twice governor of Pennsylvania. He had previously persuaded the Navy to equip lifeboats with fishing tackle. The thought came to him that fish juices might prevent deaths from the dreadful killing thirst of men without water. He tried the fish juice himself. He found the cloudy, faintly pinkish liquid, obtained by the use of a press, to be sweet and palatable and to have no particular fishy taste. He then took the matter up with the Navy authorities who became interested and arranged for the clinical tests conducted by Dr. Smith.

Science News Letter, August 14, 1943

MEDICINE

Larger Amounts of Plasma Advised for Burn Shock

► MUCH LARGER doses of blood serum or plasma than usually prescribed are needed to save the lives of patients with burn shock, Dr. D. L. Presman, Miss Martha Janota, Dr. R. E. Weston, Dr. S. O. Levinson and Dr. Heinrich Necheles, of the Samuel Deutsch Serum Center of Michael Reese Hospital, Chicago, declare. (*Journal, American Medical Association*, July 31).

At least 100 to 110 cubic centimeters (almost four ounces) for every per cent of body surface burned should be given

during the first 72 hours, they advise. About half of this should be given immediately and rapidly, using a large needle or two needles in two veins. Such treatment, they believe on the basis of their studies of burn blister fluid as well as the patients' condition, would prevent depletion of the body's proteins and "might protect vital organs like the liver and kidneys."

In two cases of patients with 45 to 50% of the body surface burned, they injected into the veins of each patient about one and one-half quarts of normal serum within the first four hours and during the next 64 hours about two and one-half more quarts of serum plus about six quarts of salt and sugar solution. Without these massive doses, to replace fluid and proteins lost from the body as a result of the burns, it is believed that both patients would have died.

Science News Letter, August 14, 1943

Georgia *hard clays* may be used satisfactorily after undergoing a practical treatment developed by the Bureau of Mines, as a substitute for Georgia soft clays widely used in paper, ceramics and rubber industries.

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☼ **DARNING** will be simplified for the housewife by a plastic device recently patented. Cloth to be mended is stretched over a supporting head of improved design which is illuminated by a small electric lamp. Yarn, needles and thimble are stored inside the handle.

Science News Letter, August 14, 1943

☼ **MOLDED PLASTIC** is being considered as a replacement for metal in corps and service insignia of the armed forces. Soaked, scalded and frozen in laboratory tests, the plastic insignia show promise of taking their place alongside the Army's new plastic buttons.

Science News Letter, August 14, 1943

☼ **MAGNETIC RECORDING** devices, compact and lightweight for Army use, have been developed. Sound is recorded on a thin piece of wire which can be played back immediately. Erasures are made by demagnetizing parts of the wire. The device could be used for combat reporting, intelligence work or as a reconnaissance aid.

Science News Letter, August 14, 1943

☼ **INSULATION** more than two-thirds again as efficient as glass wool or cork is being used to solve many wartime low-temperature refrigeration problems. Made of silica aerogel, the insulation is expected to open up new possibilities in the post-war refrigerating industry.

Science News Letter, August 14, 1943

☼ **FIRST-AID** dressing of war wounds has been improved by use of the pres-

sure sponge and bandage shown in the picture. It compresses the bleeding vessels against the hard underlying bone enough to control hemorrhage without the disadvantages of using a tourniquet. The dressing also provides a splinting effect and can be safely left in place indefinitely until surgical attention is available.

Science News Letter, August 14, 1943

☼ **THE HELPLESS FEELING** of the smoker without an ash tray need be no more, claims the inventor of a patented cigarette holder. The lighted cigarette is placed within a wire mesh cylinder, covered outside by a lightweight shield. No ash tray is needed and the holder can be laid down anywhere without scorching or burning the surface.

Science News Letter, August 14, 1943

☼ **CITRONELLA CANDLES** have been designed to repel mosquito attacks. Special refined paraffin wax of high melting point containing about one-and-a-quarter per cent. of heavy, molasses-like citronella oil give best results, the patent states.

Science News Letter, August 14, 1943

If you want more information on the new things described here, send a three-cent stamp to SCIENCE NEWS LETTER, 1719 N St., N. W., Washington 6, D. C., and ask for Gadget Bulletin 169.

CHEMISTRY-PHYSIOLOGY

"Congeners" of Spirits Prolong the Hangover

➤ **CHEMICAL** "congeners", subtle ingredients of distilled spirits, which prolong hangover and slyly increase alcoholic "kick" for the tippler, have been investigated and perhaps disarmed through experiments at Yale University's Laboratory of Applied Physiology by Dr. Howard W. Haggard, Dr. Leon A. Greenberg and Louis H. Cohen.

Extensive research reported in the *Quarterly Journal of Studies in Alcohol* (June) reveals that there are differences in poisonous effects, or toxicity, of the various beverages and that there are corresponding differences in severity of intoxication and after-effect.

But contrary to previous beliefs, the scientists discovered by newly developed test procedures that these differences are not due to the fact that the congeners add directly to toxicity. Instead they are due to the influence of some con-

gener or congeners which slow the rate at which the absorbed alcohol is burned or oxidized in the body.

Chemical treatment of the spirits which the scientists designed to destroy the congeners resulted in speeding the rate at which the alcohol was burned. The same effect was achieved by administering certain substances to the imbibor, such as the chemical glutathione, which affect the enzyme system of the body.

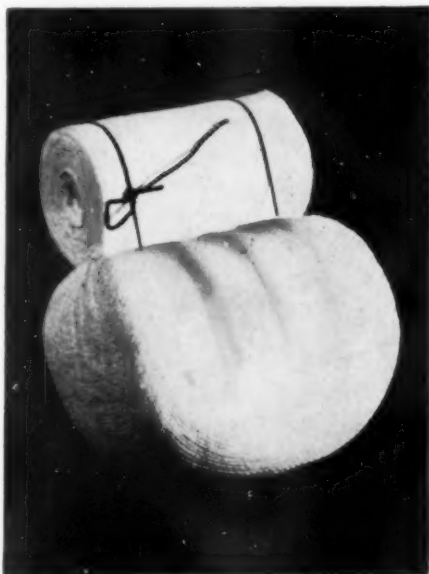
Support is given to the possibility that the action of the congener in slowing alcohol oxidation is exercised through its effect upon some enzyme system of the body, presumably that of the liver.

The experiments "do not support the popular belief that fusel oil is the primary 'toxic' ingredient of 'bad' whiskey," the researchers state. "Rather the physiological congeners are those, as yet not fully identified, which . . . possibly affect liver function and exercise profound physiological action in amounts which are as low as those in which certain vitamins and hormonal substances may act."

Chemical identity of the elusive, much-discussed congeners responsible for the action investigated is not revealed in the current report, except to show that those known to be present in the largest amounts are not guilty. Evidence bearing upon the particular congeners indicted is being assembled through studies now in progress.

Science News Letter, August 14, 1943

Crab shells harden in two days; only those crabs that have molted in the previous 24 hours are true "soft-shells".



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First Glances at New Books

► **SCIENCE LOOKS AHEAD**, by the well-known British scientist-writer A. M. Low and a group of equally eminent colleagues, is one of those omnibus books that have become deservedly popular of late years. It ranges through the whole gamut of science from evolution to criminology, and the applications of science from navigation to metallurgy. Besides giving a good general roundup on world-wide scientific development, with generous allotment of space to work in the United States, it is valuable for its disclosure of what a group of influential scientists in Britain are thinking about the future. (Oxford, \$4.50).

Science News Letter, August 14, 1943

► **FOR 20 YEARS** and more, the names of T. L. Lyon and H. O. Buckman have been associated with good teaching and sound writing on soil science. The fourth edition of **THE NATURE AND PROPERTIES OF SOILS** (Macmillan, \$3.50), edited by Prof. Buckman, is therefore assured of ready and appreciative reception.

Science News Letter, August 14, 1943

► **THE STORY** of the Stone Age on the European continent is very well known; it is fairly well known for Britain also. Ireland has remained more or less of a blank. **THE IRISH STONE AGE** (Macmillan, \$7.50), by Hallam L. Movius, Jr., by assembling and correlating all present knowledge concerning early man in the westernmost land he inhabited, performs an important service for paleo-archaeology.

Science News Letter, August 14, 1943

► **FIRST AID** directions, expanded to include some non-accidental conditions such as childbirth and to give reasons for the do's and don'ts of first aid, make up this handy, easily understood "home manual for emergencies," **WHAT TO DO TILL THE DOCTOR COMES**, by Donald B. Armstrong, with the collaboration of Grace T. Hallock (Simon and Schuster, \$1).

Science News Letter, August 14, 1943

► **SEAMEN ON SHIPS** without a surgeon or physician must frequently be their own doctors. Simple, practical and, on the whole, up-to-date information that should prove useful to them in many an emergency is given by Dr.

W. L. Wheeler, Jr., medical director of the Grace Line, in **SHIPBOARD MEDICAL PRACTICE** (Cornell Maritime Press, \$1).

Science News Letter, August 14, 1943

► **MOSLEMS** and their fascinating history are interestingly and vividly told in **THE ARABS, A SHORT HISTORY**, by P. K. Hitti (Princeton University Press, \$2). Written as an introduction for the general reader, this will be of value to those who would know more about the Arabs and the Moslem world.

Science News Letter, August 14, 1943

► **FARMS** disappearing into black skies on the wings of deadly winds have given this nation furiously to think, during the past decade. Traditional methods of cultivation are under challenge in **FLOWERMAN'S FOLLY**; Edward H. Faulkner, Western agronomist, aligns himself strongly among the challengers by his radical advocacy of letting the plow rust and cultivating only by disking green manures into the surface. He declares that his method not only saves the soil but keeps down weeds and pests. (Univ. of Oklahoma Press, \$2).

Science News Letter, August 14, 1943

Just Off the Press

BORDERLANDS OF PSYCHIATRY—Stanley Cobb—Harvard Univ. Press, 166 p., illus., \$2.50.

BULLETIN OF THE NATIONAL ASSOCIATION OF WOOL MANUFACTURERS: Activities of the National Association of Wool Manufacturers for 1942—Natl. Assn. of Wool Manufacturers, Vol. LXXII, 700 p., illus., \$10. Statistics of the industry and other matters relating to the wool textile industry.

THE GREEN EARTH: An Invitation to Botany—Harold William Rickett—Jacques Cattell, 353 p., illus., \$3.50.

THE INTERNAL ANATOMY OF DERMACENTOR ANDERSONI STILES—J. R. Douglas—Univ. of Calif. Press—64 p., illus., \$1.25.

JEWS IN AMERICAN WARS—J. George Fredman and Louis A. Falk—Jewish War Veterans of the U. S., 112 p., \$1.25.

MANUAL OF FRACTURES: Treatment by External Skeletal Fixation—C. M. Shaar and Frank P. Kreuz—Saunders, 300 p., illus., \$3.

THE MICROSCOPE AND ITS USE—Frank F. Munoz in collaboration with Dr. Harry A. Charipper—Chemical Pub. Co., 334 p., illus., \$2.50. This is a simple guide explaining the microscope and its use. It is written in non-technical language and contains chapters on various types of microscopes.

AN OUTLINE OF THE CHEMISTRY OF THE CARBOHYDRATES—Ed. F. Degering—John S. Swift Co., 474 p., illus., \$6.

RACE AND CRIME—Willem Adriaan Bongers—Columbia Univ. Press, 130 p., \$1.50. Translated from the Dutch by Margaret Mathews Hordyk.

SCIENCE LOOKS AHEAD—A. M. Low—Oxford Univ. Press, 640 p., illus., \$4.50. Printed in Great Britain in 1942.

SHIP WELDING HANDBOOK—Martin J. Coen—Cornell Maritime Press, 505 p., illus., \$3.50. The purpose of this book is to present in a simple, understandable manner some of the fundamentals of di-

rect-current, metallic arc welding in ship construction.

THE STORY OF THE AMERICAS: The Discovery, Settlement, and Development of the New World—Leland Dewitt Baldwin—Simon and Schuster, 719 p., illus., \$3.50.

THE UNITED STATES GOVERNMENT AS PUBLISHER—LeRoy Charles Merritt—Univ. of Chicago Press, 179 p., illus., \$2.50.

VERTICAL WARFARE—Francis Vivian Drake—Doubleday, Doran, 142 p., illus., \$3.

The bombing program on which the United States Air Force and the R.A.F. are basing their operations and their plans.

WORLD TRADE IN AGRICULTURAL PRODUCTS—Henry C. Taylor and Anne Dewees Taylor—Macmillan, 286 p., illus., \$3.50.

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